Joint Evaluation Report

ESR-1262

Reissued January 2024

This report also contains:

- FBC Supplement

Subject to renewal January 2025

DIVISION: 06 00 00 — WOOD, PLASTICS AND COMPOSITES **Section: 06 17 33 — Wood I-joists**	**REPORT HOLDER: EACOM TIMBER CORPORATION** **ADDITIONAL LISTEE: BLUELINX CORPORATION**	**EVALUATION SUBJECT: P3 JOIST PJI-40, PJI-60, PJI-65, PJI-80 AND PJI-90 I-JOISTS**	

1.0 EVALUATION SCOPE

1.1 Compliance with the following codes:

- 2021, 2018, 2015, 2012 and 2009 *International Building Code®* (IBC)
- 2021, 2018, 2015, 2012 and 2009 *International Residential Code®* (IRC)

Properties evaluated:

- Structural
- Fire resistance

1.2 Evaluation to the following green code(s) and standards:

- 2022 *California Green Building Standards Code* (CALGreen), Title 24, Part 11
- 2020, 2015, 2012 and 2008 ICC 700 *National Green Building Standard™* (ICC 700-2020, ICC 700-2015, ICC 700-2012 and ICC 700-2008)

Attributes verified:

See Section 3.1

2.0 USES

P3 JOIST by EACOM Timber Corporation I-joists are used as joists, roof rafters, rim joists and blocking panels in floor/ceiling and roof assemblies for single and multiple-span conditions in buildings of Type V construction.

3.0 DESCRIPTION

3.1 General:

P3 JOIST I-joists are structural elements manufactured using finger-jointed, solid-sawn wood flanges and wood structural panel webs bonded together with an exterior-grade adhesive forming an "I" cross-sectional shape. The P3 JOIST I-joists are manufactured to meet the performance standard entitled "PRI-400 Performance Standard for APA EWS I-joists," described in ESR-1405, and the EACOM Timber Corporation quality control manual. The company names and associated product trade names for the P3 JOIST and private-label I-joists are as follows:

COMPANY OR LISTEE	PRODUCT TRADE NAME AND SERIES
EACOM Timber Corporation BlueLinx Corporation	PJI 40, 60, 65, 80 and 90 BLI 40, 60, 65, 80 and 90

All PJI I-joists, regardless of the private-label mark, are identified as described in Section 7.0 of this report.

The attributes of the P3 JOIST I-joists have been verified as conforming to the requirements of (i) CALGreen Section A4.404.3 for efficient framing techniques; (ii) ICC 700-2020 Sections 608.1(2), 11.608.1(2) and 13.104.3.1(4); (iii) ICC 700-2015 Sections 608.1(2), 11.608.1(2) and 12.1(A).608.1(b); (iv) ICC 700-2012 Section 608.1(2), 11.608.1(2) and 12.1(a).608.1; and (v) ICC 700-2008 Section 607.1(2) for resource-efficient materials. Note that decisions on compliance for those areas rest with the user of this report. The user is advised of the project-specific provisions that may be contingent upon meeting specific conditions, and the verification of those conditions is outside the scope of this report. These codes or standards often provide supplemental information as guidance.

3.2 Material Specifications:

3.2.1 Flanges: P3 JOIST I-joists are fabricated from solid-sawn SPF, Grade 1650 MSR for PJI-40 and PJI-65, Grade 2100 MSR for PJI-60 and PJI-80 flanges, and Grade 2400 MSR for PJI-90 flanges [nominal size of 2 inches by 3 inches (51 by 76 mm) for PJI-40 and PJI-60, and 2 inches by 4 inches (51 by 102 mm) for PJI-65, PJI-80 and PJI-90].

The P3 JOIST I-joists are produced with constant depths as noted in the table in Figure 1 and lengths from 12 to 64 feet (3.6 to 19.5 m).

3.2.2 Web: Webs consist of $^{3}/_{8}$-inch-thick or $^{7}/_{16}$-inch-thick (9.5 mm or 11.1 mm), oriented strand board (OSB), which meets the requirements of the United States Department of Commerce Product Standard PS 2 for Structural 1, Exposure 1, rated panels.

3.2.3 Adhesive: Adhesives are exterior type complying with ASTM D2559 and as specified in the quality control manual that contains P3 JOIST manufacturing standards. The adhesives have also been tested in accordance with ASTM D7247.

4.0 DESIGN AND INSTALLATION

4.1 General:

Installation of P3 JOIST I-joists must comply with this report and the manufacturer's published installation instructions. The manufacturer's published installation instructions must be available at the jobsite at all times during installation.

4.2 Design Values:

Design values listed in this report for P3 JOIST I-joists are limited to I-joists installed in covered, dry conditions of use. Dry conditions of use are environmental conditions represented by sawn lumber in which the equilibrium moisture content is less than 16 percent.

See Tables 1A, 1B, and 2 of this report for allowable design values and span/load values of P3 JOIST I-joists. See Figure 1 of this report for a typical cross section of a P3 JOIST I-joist, showing flange and web dimensions. See Table 3 of this report for allowable web hole sizes and locations.

With the exception of reference design reactions, reference design values for P3 JOIST I-joists must be adjusted using the appropriate adjustment factors as specified in the American Wood Council *National Design Specification® for Wood Construction* (NDS) with the Supplement *Design Values for Wood Construction*. Reference design reactions, corresponding to various load duration factors, are given in Table 1B.

4.3 Deflection:

Maximum allowable deflection of P3 JOIST I-joists under design loads must not exceed the maximum allowable deflections specified in Section 1604.3 of the IBC, and Section R301.7 of the IRC. The method to calculate the deflection is as follows:

Calculated deflection of the joists under design load, utilizing the deflection formulas listed below:

$\Delta = 5w\ell^4/(384\,EI) + w\ell^2/K$ for uniformly distributed loads

$\Delta = P\ell^3/(48\,EI) + 2P\ell/K$ for simple span with a concentrated load at mid-span

where:

P = Concentrated load (lbf)

w = Uniform loads (lbf/in.)

EI = Bending stiffness (in.^{2} - lbf)

ℓ = Span (inches) between centers of supports.

K = Coefficient of shear deflection (lbf) (see Table 1A of this report)

Δ = Calculated deflection (in.)

4.4 Shear Load:

Vertical shear load calculations must include all loads resisted by the P3 JOIST I-joists between the faces of the supports.

4.5 Lateral Support:

The compression flange of P3 JOIST I-joists must be provided with continuous lateral support. Sheathing fastened in accordance with the applicable code may be used to provide this lateral support at the top flange. Continuous bracing must also be provided to support the bottom flange in areas of negative moment over interior supports and at cantilevers. Additionally, the ends of P3 JOIST I-joists must be provided with lateral support to resist rollover at bearing locations. This lateral support may be provided by either end blocking, rim joist, or cross bridging and must be installed consistent with the lateral stability presumed in the design calculations.

4.6 Bottom Flange Loads:

Concentrated loads imposed on the bottom flange of the joists have not been evaluated and are outside the scope of this report.

4.7 End Bearing:

End bearing length must be a minimum $1^3/_4$ inches (44 mm) for simple spans; for multiple span joists, intermediate bearing length must be a minimum $3^1/_2$ inches (89 mm). P3 JOIST I-joist bearing lengths must be in accordance with Table 1B of this report.

4.8 Repetitive-member Use:

The repetitive-member use factors applicable to the moment capacities listed in Table 1A of this report are limited to 1.0.

4.9 Holes in I-joist Web:

Table 3 of this report specifies allowable sizes and locations of round holes in the I-joist webs.

4.10 Member Spans:

I-joist spans may be determined in accordance with Table 2 of this report.

4.11 Fasteners:

Fastener design values must be in accordance with the applicable code. Fastener spacings must comply with the minimum spacing requirements prescribed by the code for nails installed in sawn lumber having a minimum specific gravity of 0.42 such as for spruce-pine-fir. Fastening must be accomplished in a manner that will not cause splitting in the I-joist flanges. When P3 JOIST I-joists are used as wood diaphragm framing, refer to Table 4 for minimum nail spacing in I-joist flanges.

4.12 Web Stiffeners:

Web stiffener requirements for reactions and concentrated loads are as shown in Table 1B and Figure 3 of this report.

4.13 Horizontal Diaphragms: P3 JOIST I-joists used in the construction of horizontal wood diaphragms are subject to the allowable load values and requirements of Table 4.

4.14 Blocking Panels and Rim Boards:

Bearing walls perpendicular to and supported by I-joists require full-depth blocking or rim joists at supports. I-joists used as blocking panels must be installed between I-joists and have the maximum applicable vertical load capacities shown in Table 1A. When used as rim boards, P3 JOIST I-joists must be designed in accordance with the uniform vertical load transfer capacities shown in Tables 1A and the lateral load transfer capacities equal to the allowable shear values shown in Table 4.

4.15 Fire-resistance-rated Construction:

The P3 JOIST I-joists described in this report may be used as described in Section 4.2.2 of ESR-1405. Evaluation of the use of P3 JOIST I-joists as a component of other fire-resistance-rated roof or floor assemblies is outside the scope of this report.

5.0 CONDITIONS OF USE

The P3 JOIST I-joists described in this report comply with, or are suitable alternatives to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:

5.1 Installation must comply with this report, the manufacturer's published installation instructions and the applicable code. If there is a conflict between the installation instructions and this report, this report governs.

5.2 Design calculations and details for specific applications demonstrating that P3 JOIST I-joists comply with this report must be submitted to the code official. The design calculations and details for specific applications must be prepared by a registered design professional where required by the statutes of the jurisdiction in which the project is to be constructed.

Calculations must indicate the following:

- Load duration factor used in accordance with AWC NDS.
- Required design capacities of the I-joists under design loads.
- Allowable design capacities of the P3 JOIST I-joists.
- Allowable deflection of the P3 JOIST I-joists consistent with this report.

5.3 Cutting and notching of P3 JOIST I-joist flanges is not permitted, except for cutting to proper length for installation.

5.4 The use of pressure-treated P3 JOIST I-joists, or portions thereof, is outside the scope of this report.

5.5 Evaluation of the use of P3 JOIST I-joists as a component of fire-resistance-rated construction is as noted in Section 4.13 of this report.

5.6 Web opening sizes and locations within P3 JOIST I-joists must be limited to the criteria in Table 3 of this report. Web opening conditions not covered in Table 3 of this report have not been evaluated and are outside the scope of this report.

5.7 P3 JOIST I-joists are produced in Sault St. Marie, Ontario, Canada, under a quality control program with inspections by ICC Evaluation Service, LLC and APA – The Engineered Wood Association.

6.0 EVIDENCE SUBMITTED

Data in accordance with the ICC-ES Acceptance Criteria for Prefabricated Wood I-joists (AC14), dated June 2019 (Editorially revised February 2021).

Data in accordance with the ICC-ES Acceptance Criteria for Rim Board Products (AC124), dated June 2019 (editorially revised February 2021).

7.0 IDENTIFICATION

7.1 The ICC-ES mark of conformity, electronic labeling, or the evaluation report number (ICC-ES ESR-1262) along with the name, registered trademark, or registered logo of the report holder (EACOM Timber Corporation) or the additional listee (BlueLinx Corporation) must be included in the product label.

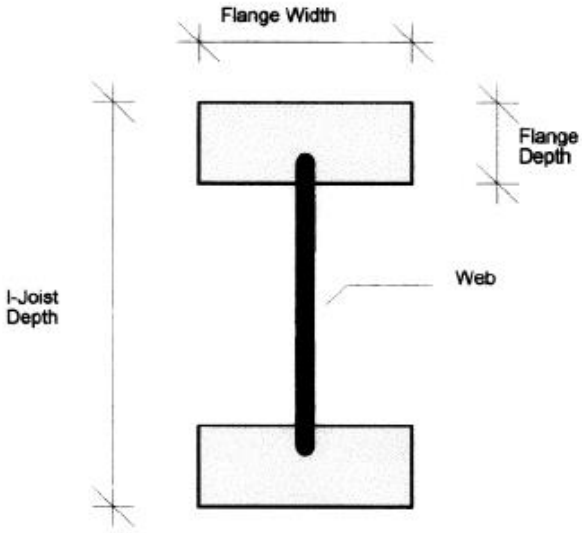
7.2 In addition, each I-Joist must be marked with the product trade name; the joist series; the production date; and the name or trademark of the inspection agency (APA – The Engineered Wood Association).

7.3 The report holder's contact information is the following:

EACOM TIMBER CORPORATION
1195 PEOPLES ROAD
SAULT STE. MARIE, ONTARIO P6C 3W7
CANADA
(705) 254-7597
www.eacom.ca

7.4 The additional listee's contact information is the following:

BLUELINX CORPORATION
1950 SPECTRUM CIRCLE
MARIETTA, GEORGIA 30067
(770) 953-7000



I-Joist Series	Flange Grade	Flange Size (depth x width) (inches)	Flange Specific Gravity	Web Thickness (inches)	Range of I-Joist Depths (inches)
PJI-40	1.5E Proprietary	1.5 × 2.5	0.42	$^{3}/_{8}$	$9^{1}/_{4}$ to 16
PJI-60	1.8E	1.5 × 2.5	0.46	$^{3}/_{8}$	$9^{1}/_{2}$ to 16
PJI-65	1.5E Proprietary	1.5 × 3.5	0.42	$^{3}/_{8}$	$11^{7}/_{8}$ to 16
PJI-80	1.8E	1.5 × 3.5	0.46	$^{7}/_{16}$	$9^{1}/_{2}$ to 24
PJI-90	2.0E	1.5 x 3.5	0.50	$^{7}/_{16}$	$11^{7}/_{8}$ to 24

For **SI:** 1 inch = 25.4 mm.

FIGURE 1—P3 JOIST I-JOIST DIMENSIONS

TABLE 1A—REFERENCE DESIGN VALUES[1,2,3]

JOIST SERIES	DEPTH (in.)	BENDING STIFFNESS, EI (lb-in.^{2}) x 10^6	BENDING MOMENT, M (ft-lbf)	SHEAR, V (lbf)	VERTICAL LOAD CAPACITY, VLC[4,5] (lbf/ft)	SHEAR DEFL. COEFFICIENT, K (x10^6 lbf)
PJI-40	9 1/4	181	2,690	1,080	2,000	4.81
	9 1/2	193	2,735	1,400	2,000	4.94
	11 1/4	289	3,380	1,345	2,000	5.85
	11 7/8	330	3,545	1,620	2,000	6.18
	14	482	4,270	1,815	2,000	7.28
	16	657	4,950	2,000	2,000	8.32
PJI-60	9 1/2	231	3,780	1,400	2,000	4.94
	11 7/8	396	4,900	1,620	2,000	6.18
	14	584	5,895	1,815	2,000	7.28
	16	799	6,835	2,000	2,000	8.32
PJI-65	11 7/8	454	5,085	1,620	2,000	6.18
	14	664	6,125	1,815	2,000	7.28
	16	901	7,105	2,000	2,000	8.32
PJI-80	9 1/2	321	5,375	1,405	2,000	4.94
	11 7/8	547	6,970	1,650	2,000	6.18
	14	802	8,390	1,865	2,000	7.28
	16	1,092	9,730	2,070	2,000	8.32
	18	1,413	11,000	2,450	2,000	9.36
	20	1,790	12,180	2,550	1,720	10.40
	22	2,214	13,340	2,650	1,440	11.44
	24	2,687	14,490	2,750	1,390	12.48
PJI-90	11 7/8	601	8,515	1,650	2,000	6.18
	14	877	10,255	1,865	2,000	7.28
	16	1,187	11,895	2,070	2,000	8.32
	18	1,546	13,445	2,450	2,000	9.36
	20	1,957	14,885	2,550	1,720	10.40
	22	2,419	16,305	2,650	1,440	11.44
	24	2,934	17,710	2,750	1,390	12.48

For **SI:** 1 inch = 25.4 mm; 1 lbf = 4.45 N; 1 lbf-ft = 1.356 N-m; 1lbf-in^2 = 0.00287 N-m^2.

[1]Values are reference design values for normal duration of loads. All values except EI and K may be adjusted for other load durations as permitted by the applicable code for solid-sawn lumber.
[2]Reference design moment capacity (M) of I-joists must not be increased by any repetitive member use factor.
[3]For calculating uniform load and center-point load deflections of the P3 JOIST in a simple-span application:

For uniform loads: $\Delta = \frac{5\,w\ell^4}{384\,EI} + \frac{w\ell^2}{K}$

For center-point load: $\Delta = \frac{P\ell^3}{48\,EI} + \frac{2\,P\ell}{K}$

Where:

Δ = Deflection (in.)
w = Uniform load (lbf/in.)
ℓ = Span length (in.)
P = Concentrated load (lbf)
EI = Bending stiffness of the I-joist (lbf-in.^{2})
K = Coefficient of shear deflection (lbf)

[4]Allowable vertical-load capacity for I-joists used as blocking panels or rim boards.
[5]Use of I-joists with allowable vertical-load capacities less than 2000 lbf/ft is limited to engineered construction.

TABLE 1B—REFERENCE DESIGN REACTIONS AND FLANGE BEARING CAPACITIES[1,2,3]

JOIST SERIES	DEPTH (in.)	END REACTION (lbf)				INTERIOR REACTION (lbf)				FLANGE BEARING CAPACITY (per in. of brg. length) (lbf/in.)
		1.75" Bearing		4" Bearing		3.5" Bearing		5.5" Bearing		
		Web Stiffeners		Web Stiffeners		Web Stiffeners		Web Stiffeners		
		No	Yes	No	Yes	No	Yes	No	Yes	
PJI-40	9 1/4	1,080	1,080	1,080	1,080	2,700	2,880	2,795	3,230	955
	9 1/2	1,195	1,275	1,260	1,400	2,755	2,900	3,245	3,245	
	11 1/4	1,200	1,310	1,345	1,345	2,755	3,010	3,245	3,340	
	11 7/8	1,200	1,460	1,430	1,620	2,755	3,045	3,245	3,375	
	14	1,200	1,620	1,580	1,815	2,755	3,175	3,245	3,485	
	16	1,200	1,750	1,720	2,000	2,755	3,300	3,245	3,595	
PJI-60	9 1/2	1,195	1,275	1,260	1,400	2,755	2,900	3,245	3,245	1,180
	11 7/8	1,200	1,460	1,430	1,620	2,755	3,045	3,245	3,375	
	14	1,200	1,620	1,580	1,815	2,755	3,175	3,245	3,485	
	16	1,200	1,750	1,720	2,000	2,755	3,300	3,245	3,595	
PJI-65	11 7/8	1,200	1,460	1,430	1,620	2,810	3,300	3,255	3,585	1,380
	14	1,200	1,620	1,580	1,815	3,020	3,455	3,435	3,745	
	16	1,200	1,750	1,720	2,000	3,265	3,600	3,600	3,900	
PJI-80	9 1/2	1,305	1,405	1,405	1,405	2,760	3,125	3,245	3,400	1,705
	11 7/8	1,315	1,590	1,590	1,650	2,810	3,300	3,255	3,585	
	14	1,325	1,760	1,615	1,865	3,020	3,455	3,435	3,745	
	16	1,330	1,915	1,630	2,070	3,265	3,600	3,600	3,900	
	18	1,340	1,925	1,650	2,450	3,200	3,950	3,650	4,350	
	20	1,350	2,170	1,665	2,550	3,200	3,950	3,650	4,350	
	22	1,355	2,415	1,685	2,650	3,200	3,950	3,650	4,350	
	24	1,365	2,660	1,700	2,750	3,200	3,950	3,650	4,350	
PJI-90	11 7/8	1,315	1,590	1,590	1,650	2,810	3,300	3,255	3,585	2,000
	14	1,325	1,760	1,615	1,865	3,020	3,455	3,435	3,745	
	16	1,330	1,915	1,630	2,070	3,265	3,600	3,600	3,900	
	18	1,340	1,925	1,650	2,450	3,200	3,950	3,650	4,350	
	20	1,350	2,170	1,665	2,550	3,200	3,950	3,650	4,350	
	22	1,355	2,415	1,685	2,650	3,200	3,950	3,650	4,350	
	24	1,365	2,660	1,700	2,750	3,200	3,950	3,650	4,350	

For **SI:** 1 inch = 25.4 mm; 1 lbf = 4.45 N; 1 lbf/in. = 0.175 N/mm.

[1]The tabulated reference design reaction values are for normal duration of load and are permitted to be adjusted for other load durations in accordance with the applicable code, provided the flange bearing capacity is not exceeded. Values limited by flange bearing capacity may not be further increased for duration of load. The flange bearing capacity, per inch of bearing length, is based on reference design compression perpendicular-to-grain of the I-joist flange, accounting for eased edges, and may be further limited by the bearing strength of the support material.

[2]Linear interpolation of the reaction capacity between the minimum and maximum bearing length is permitted. Bearing lengths longer than the maximum do not further increase reaction capacity.

[3]See Figure 3 for required web stiffener details.

TABLE 2—ALLOWABLE SPAN LENGTHS (ft-in.)

JOIST DEPTH (in.)	JOIST DESIGN	ON-CENTER SPACING (in.)			
		12	16	19.2	24
SIMPLE SPANS					
9 1/4	PJI-40	17'-7"	16'-1"	15'-3"	14'-3"
9 1/2	PJI-40	18'-0"	16'-5"	15'-7"	14'-6"
	PJI-60	18'-11"	17'-3"	16'-3"	15'-2"
	PJI-80	20'-9"	18'-11"	17'-9"	16'-6"
11 1/4	PJI-40	20'-6"	18'-9"	17'-9"	16'-3"
11 7/8	PJI-40	21'-5"	19'-7"	18'-6"	16'-8"
	PJI-60	22'-7"	20'-7"	19'-5"	18'-1"
	PJI-65	23'-6"	21'-5"	20'-2"	18'-9"
	PJI-80	24'-9"	22'-6"	21'-3"	19'-9"
	PJI-90	25'-6"	23'-2"	21'-9"	20'-3"
14	PJI-40	24'-4"	22'-2"	20'-6"	18'-4"
	PJI -60	25'-8"	23'-5"	22'-1"	20'-7"
	PJI-65	26'-8"	24'-3"	22'-10"	21'-3"
	PJI-80	28'-2"	25'-7"	24'-1"	22'-5"
	PJI-90	28'-11"	26'-3"	24'-9"	22'-11"
16	PJI-40	26'-11"	24'-2"	22'-1"	19'-9"
	PJI-60	28'-6"	25'-11"	24'-6"	22'-9"
	PJI-65	29'-6"	26'-10"	25'-4"	23'-6"
	PJI-80	31'-2"	28'-4"	26'-8"	24'-10"
	PJI-90	32'-0"	29'-1"	27'-4"	25'-4"
18	PJI-80	34'-0"	30'-11"	29'-1"	27'-0"
	PJI-90	34'-11"	31'-9"	29'-10"	27'-9"
20	PJI-80	36'-10"	33'-6"	31'-6"	29'-3"
	PJI-90	37'-10"	34'-4"	32'-4"	30'-0"
22	PJI-80	39'-6"	35'-11"	33'-10"	31'-5"
	PJI-90	40'-7"	36'-11"	34'-8"	32'-2"
24	PJI-80	42'-2"	38'-4"	36'-1"	33'-6"
	PJI-90	43'-3"	39'-4"	37'-0"	34'-4"
MULTIPLE SPANS					
9 1/4	PJI-40	19'-1"	17'-6"	16'-1"	14'-4"
9 1/2	PJI-40	19'-6"	17'-9"	16'-2"	14'-6"
	PJI-60	20'-6"	18'-8"	17'-8"	16'-5"
	PJI-80	22'-7"	20'-6"	19'-3"	17'-11"
11 1/4	PJI-40	22'-4"	19'-10"	18'-1"	16'-1"
11 7/8	PJI-40	23'-4"	20'-4"	18'-6"	16'-6"
	PJI-60	24'-6"	22'-4"	21'-1"	19'-6"
	PJI-65	25'-6"	23'-2"	21'-10"	19'-10"
	PJI-80	26'-11"	24'-6"	23'-0"	21'-4"
	PJI-90	27'-8"	25'-2"	23'-7"	21'-11"
14	PJI-40	25'-10"	22'-4"	20'-4"	18'-2"
	PJI-60	27'-11"	25'-5"	23'-11"	21'-5"
	PJI-65	28'-11"	26'-4"	24'-5"	21'-10"
	PJI-80	30'-7"	27'-10"	26'-2"	23'-10"
	PJI-90	31'-5"	28'-6"	26'-10"	23'-10"
16	PJI-40	27'-10"	24'-0"	21'-11"	19'-7"
	PJI-60	31'-0"	28'-2"	25'-10"	21'-8"
	PJI-65	32'-1"	28'-10"	26'-4"	23'-6"
	PJI-80	33'-11"	30'-10"	29'-0"	25'-9"
	PJI-90	34'-9"	31'-7"	29'-8"	25'-9"
18	PJI-80	37'-0"	33'-7"	31'-8"	29'-4"
	PJI-90	38'-0"	34'-6"	32'-5"	30'-1"
20	PJI-80	40'-1"	36'-5"	34'-3"	30'-11"
	PJI-90	41'-2"	37'-4"	35'-2"	31'-3"

TABLE 2—ALLOWABLE SPAN LENGTHS (ft-in.) (CONTINUED)

JOIST DEPTH (in.)	JOIST DESIGN	ON-CENTER SPACING (in.)			
		12	16	19.2	24
MULTIPLE SPANS					
22	PJI-80	43'-0"	39'-1"	36'-2"	31'-3"
	PJI-90	44'-2"	40'-2"	37'-9"	31'-3"
24	PJI-80	45'-11"	41'-4"	37'-9"	31'-3"
	PJI-90	47'-2"	42'-10"	39'-2"	31'-3"

For **SI:** 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 psf = 47.88 Pa.

[1]Allowable clear span applicable to simple-span or multiple-span residential floor construction with a design dead load of 10 psf and a live load of 40 psf. The live load deflection is limited to L/480 (L = span length in inches). This span chart is based on uniform loads. For applications other than uniformly distributed loads, an engineering analysis may be required based on the use of the design properties in Tables 1A and 1B.

[2]Spans are based on a composite floor with glue-nailed sheathing meeting the requirements for APA Rated Sheathing STURD-I-FLOOR, conforming to PS 2, with a minimum thickness of $^{19}/_{32}$ inch (40/20 or 20o.c.) for a joist spacing of 19.2 inches or less, or $^{23}/_{32}$ inch (48/24 or 24 o.c.) for a joist spacing of 24 inches. Adhesive must meet APA Specification AFG-01 or ASTM D3498. Spans must be reduced when floor sheathing is nailed only; consult EACOM.

[3]Minimum bearing length must be $1^{3}/_{4}$ inches for the end bearings and $3^{1}/_{2}$ inches for the intermediate bearings.

[4]Bearing stiffeners are not required when I-joists are used with the spans and spacings given in the above table, except on 18-, 20-, 22- and 24-inch PJI-80 and PJI-90 joists, and as required for use with hangers.

TABLE 3—LOCATION OF CIRCULAR HOLES IN PJI JOIST WEBS, SIMPLE OR MULTIPLE SPAN FOR DEAD LOADS UP TO 10 psf AND LIVE LOADS UP TO 40 psf[1,2,3,4,5]

JOIST DEPTH (in.)	JOIST SERIES	SAF[6]	MINIMUM DISTANCE FROM INSIDE FACE OF ANY SUPPORT TO CENTER OF HOLE (ft-in.)														
			Round Hole Diameter (in.)														
			2	3	4	5	6	$6^{1}/_{4}$	7	8	$8^{5}/_{8}$	9	10	$10^{3}/_{4}$	11	12	$12^{3}/_{4}$
$9^{1}/_{4}$	PJI-40	14'-3"	0'-9"	2'-0"	3'-3"	4'-7"	6'-1"										
$9^{1}/_{2}$	PJI -40	14'-6"	0'-7"	0'-8"	1'-2"	2'-9"	4'-5"	4'-11"									
	PJI -60	15'-2"	0'-7"	1'-1"	2'-7"	4'-3"	6'-0"	6'-6"									
	PJI-80	16'-6"	0'-7"	2'-0"	3'-7"	5'-3"	7'-1"	7'-7"									
$11^{1}/_{4}$	PJI-40	16'-1"	0'-7"	0'-8"	1'-8"	2'-11"	4'-4"	4'-8"	5'-9"	7'-4"							
$11^{7}/_{8}$	PJI -40	16'-6"	0'-7"	0'-8"	0'-8"	1'-2"	2'-8"	3'-0"	4'-2"	5'-9"	6'-11"						
	PJI -60	18'-1"	0'-7"	0'-8"	1'-8"	3'-1"	4'-8"	5'-0"	6'-3"	8'-0"	9'-2"						
	PJI-65	18'-9"	0'-7"	0'-8"	1'-11"	3'-4"	4'-10"	5'-3"	6'-6"	8'-3"	9'-5"						
	PJI -80	19'-8"	0'-7"	1'-4"	2'-10"	4'-4"	5'-11"	6'-4"	7'-7"	9'-5"	10'-8"						
	PJI -90	20'-1"	0'-7"	1'-9"	3'-3"	4'-9"	6'-4"	6'-9"	8'-0"	9'-10"	11'-1"						
14	PJI -40	18'-2"	0'-7"	0'-8"	0'-8"	0'-9"	1'-2"	1'-6"	2'-7"	4'-0"	4'-11"	5'-6"	7'-1"	8'-5"			
	PJI -60	20'-6"	0'-7"	0'-8"	0'-8"	1'-11"	3'-4"	3'-8"	4'-9"	6'-3"	7'-3"	7'-10"	9'-7"				
	PJI-65	21'-3"	0'-7"	0'-8"	0'-11"	2'-3"	3'-7"	3'-11"	5'-1"	6'-7"	7'-7"	8'-2"	9'-11"				
	PJI -80	22'-4"	0'-7"	0'-8"	1'-10"	3'-2"	4'-8"	5'-0"	6'-2"	7'-9"	8'-9"	9'-5"	11'-3"				
	PJI -90	22'-11"	0'-7"	0'-8"	1'-10"	3'-2"	4'-8"	5'-0"	6'-2"	7'-9"	8'-9"	9'-5"	11'-3"				
16	PJI -40	19'-7"	0'-7"	0'-8"	0'-8"	0'-9"	0'-9"	0'-10"	1'-2"	2'-6"	3'-4"	3'-10"	5'-3"	6'-5"	6'-9"	8'-5"	9'-9"
	PJI -60	21'-9"	0'-7"	0'-8"	0'-8"	0'-9"	1'-4"	1'-8"	2'-7"	3'-11"	4'-10"	5'-4"	6'-10"	8'-0"	8'-5"	10'-1"	
	PJI-65	23'-6"	0'-7"	0'-8"	0'-8"	1'-2"	2'-6"	2'-10"	3'-10"	5'-2"	6'-1"	6'-8"	8'-2"	9'-4"	9'-9"	11'-6"	
	PJI -80	24'-9"	0'-7"	0'-8"	0'-10"	2'-2"	3'-6"	3'-10"	4'-11"	6'-4"	7'-4"	7'-11"	9'-6"	10'-9"	11'-2"	13'-0"	
	PJI -90	25'-4"	0'-7"	0'-8"	0'-10"	2'-2"	3'-6"	3'-10"	4'-11"	6'-4"	7'-4"	7'-11"	9'-6"	10'-9"	11'-2"	13'-0"	
18	PJI -80	27'-0"	0'-7"	0'-8"	0'-8"	0'-10"	2'-3"	2'-7"	3'-8"	5'-1"	6'-1"	6'-8"	8'-2"	9'-5"	9'-10"	11'-7"	12'-11"
	PJI -90	27'-8"	0'-7"	0'-8"	0'-8"	1'-6"	2'-11"	3'-3"	4'-4"	5'-10"	6'-10"	7'-5"	9'-0"	10'-3"	10'-8"	12'-5"	13'-9"
20	PJI -80	29'-3"	0'-7"	0'-8"	0'-8"	0'-9"	1'-8"	2'-0"	3'-0"	4'-4"	5'-3"	5'-9"	7'-2"	8'-3"	8'-8"	10'-2"	11'-4"
	PJI -90	30'-0"	0'-7"	0'-8"	0'-8"	0'-9"	1'-11"	2'-3"	3'-3"	4'-8"	5'-6"	6'-0"	7'-5"	8'-7"	8'-11"	10'-6"	11'-8"
22	PJI -80	31'-3"	0'-7"	0'-8"	0'-8"	0'-9"	0'-9"	0'-10"	1'-9"	3'-0"	3'-9"	4'-3"	5'-7"	6'-7"	6'-11"	8'-3"	9'-4"
	PJI -90	31'-3"	0'-7"	0'-8"	0'-8"	0'-9"	0'-9"	0'-10"	1'-9"	3'-0"	3'-9"	4'-3"	5'-7"	6'-7"	6'-11"	8'-3"	9'-4"
24	PJI -80	31'-3"	0'-7"	0'-8"	0'-8"	0'-9"	0'-9"	0'-10"	0'-10"	1'-6"	2'-2"	2'-8"	3'-10"	4'-9"	5'-1"	6'-4"	7'-4"
	PJI -90	31'-3"	0'-7"	0'-8"	0'-8"	0'-9"	0'-9"	0'-10"	0'-10"	1'-6"	2'-2"	2'-8"	3'-10"	4'-9"	5'-1"	6'-4"	7'-4"

For **SI:** 1 inch = 25.4 mm, 1 foot = 304.8 mm.

[1]Above tables may be used for I-joist spacing of 24 inches on center or less.

[2]Hole location distance is measured from inside face of supports to center of hole.

[3]Distances in this chart are based on a uniformly distributed design dead load of 10 psf (479 Pa), plus a uniformly distributed design live load of 40 psf (1915 Pa).

[4]For continuous joists with more than one span, use the longest span to determine hole location in either span.

[5]Joists with web hole sizes and/or locations that fall outside of the scope of this table must be analyzed based on the actual hole size, joist spacing, span, and loading conditions. The I-joist shear capacity at the location of a circular web hole is calculated using the following equation: V_{rh} = Published Shear Value x [(Joist Depth - Hole Diameter) / Joist Depth].

[6]SAF = Span Adjustment Factor, used as defined below.

OPTIONAL (next page):

Table 3 is based on the I-joists being used at their maximum span. If the I-joists are placed at less than their full allowable span, the maximum distance from the centerline of the hole to the face of any support (*D*) as given above may be reduced as follows:

$$D_{reduced} = \frac{L_{actual}}{SAF} \times D$$

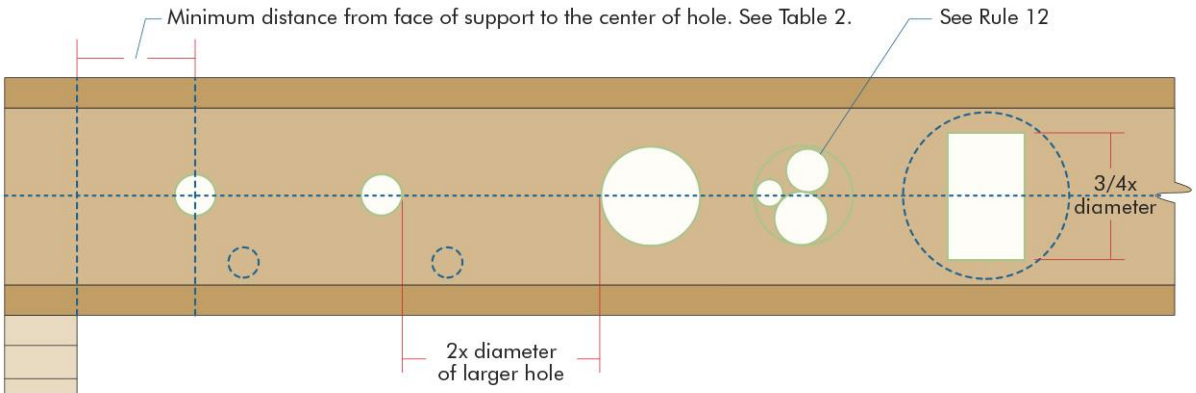
Where:

$D_{reduced}$ = Distance from the inside face of any support to center of hole, reduced for less-than-maximum span applications (ft). The reduced distance must not be less than 6 inches from the face of the support to edge of the hole.
L_{actual} = The actual measured span distance between the inside faces of supports (ft).
SAF = Span Adjustment Factor given in Table 3.
D = The minimum distance from the inside face of any support to center of hole from Table 3 above.

If $\frac{L_{actual}}{SAF}$ is greater than 1.0, use 1.0 in the above calculation for $\frac{L_{actual}}{SAF}$.

Rules for cutting holes in PJI joists:

1. The distance between the inside edge of the support and the centerline of any hole must be in compliance with the requirements of Table 3.
2. I-joist top and bottom flanges must NEVER be cut, notched, or otherwise modified.
3. Whenever possible, field-cut holes should be centered on the middle of the web.
4. The maximum size hole that can be cut into an I-joist web must equal the clear distance between the flanges of the I-joist minus $^1/_4$ inch. A minimum of $^1/_8$ inch should always be maintained between the top or bottom of the hole and the adjacent I-joist flange.
5. The sides of square holes or longest sides of rectangular holes must not exceed three fourths of the diameter of the maximum round hole permitted at that location.
6. Where more than one hole is necessary, the distance between adjacent hole edges must exceed twice the diameter of the largest round hole or twice the size of the largest square hole (or twice the length of the longest side of the longest rectangular hole) and each hole must be sized and located in compliance with the requirements of Table 3.
7. $1^1/_2$-inch holes are permitted anywhere in a cantilevered section of an PJI Joist. Holes of greater size may be permitted subject to verification.
8. A $1^1/_2$-inch hole can be placed anywhere in the web provided that it meets the requirements of 6 above.
9. For joists with more than one span, use the longest span to determine hole location in either span.
10. All holes must be cut in a workmanlike manner in accordance with the restrictions listed above and as illustrated in Figure 2.
11. Limit three maximum size holes per span.
12. A group of round holes at approximately the same location is permitted if they meet the requirements for a single round hole circumscribed around them.



Knockouts are prescored holes often provided by I-joist manufacturers for the contractor's convenience to install electrical or small plumbing lines. They are typically 1-3/8 to 1-3/4 inches in diameter, and are spaced 12 to 24 inches on center along the length of the I-joist. Where possible, it is preferable to use knockouts instead of field-cutting holes.

FIGURE 2—TYPICAL HOLES IN THE WEB

Requirements for Web Stiffeners:

1. Wood structural panel web stiffeners must be placed on each side of the I-joist web at:
   (a) Hangers with side nailing.
   (b) Hangers which do not laterally support the top flange of the I-joist.
   (c) Locations where concentrated loads in excess of 1580 pounds are applied to the top flange of the I-joist between supports or, in the case of cantilever, anywhere between the cantilever tip and the support.
   (d) At exterior supports in engineered applications where concentrated loads cause exterior reaction loads to exceed 1580 pounds.
   (e) At reactions exceeding the tabulated values corresponding to installations without web stiffeners, as shown in Table 1B.
   (f) At all end reactions on 18-, 20-, 22- and 24-inch PJI-80 and PJI-90 joists.
2. Web stiffeners must be made of Utility grade SPF (south) or better for lumber and/or sheathing grade or better for wood structural panels. When wood structural panels are used as web stiffeners, the strong axis of the panel must be oriented vertically (perpendicular to the long axis of the I-joist).

Stiffener Size and Nailing Requirement

Joist Depth	2-1/2″ Wide Flange 8d (2-1/2″) nails	3-1/2″ Wide Flange 10d (3″) nails
9 1/2″	4	-
11 7/8″	4	4
14″	4	4
16″	4	4
18″	-	6
20″	-	6
22″	-	8
24″	-	8
Minimum Stiffener Size	1″x2-5/16″ (width)	1-1/2″x2-5/16″ (width)

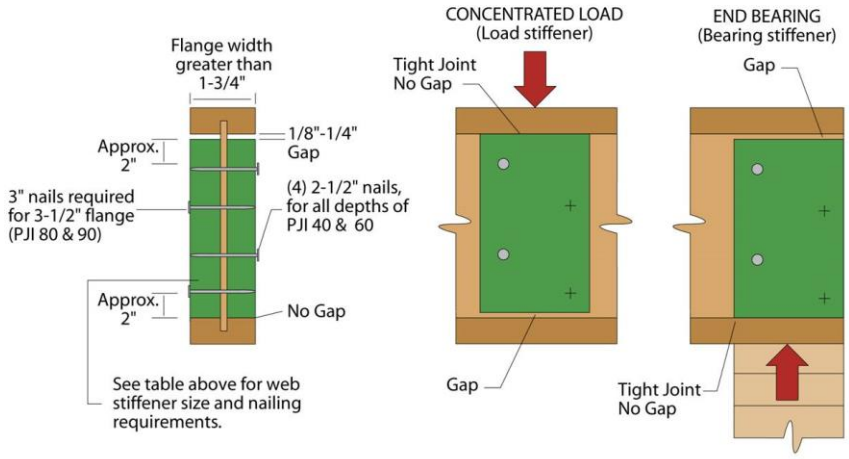


FIGURE 3—WEB STIFFENER REQUIREMENTS

TABLE 4—ALLOWABLE SHEAR (PLF) FOR HORIZONTAL WOOD STRUCTURAL PANEL DIAPHRAGMS FRAMED WITH P3 JOIST I-JOISTS FOR WIND[1] OR SEISMIC LOADING[2,3,9]

Sheathing Grade	Common Nail Size	Minimum Nominal Panel Thickness (in.)	Minimum Nominal Width of Framing Members at Adjoining Edges and Boundaries (in.)[4]	Blocked Diaphragms			Unblocked Diaphragms	
				Nail Spacing (in.) at Diaphragm Boundaries (All Cases), at Continuous Panel Edges Parallel to Load (Cases 3 & 4), and at All Panel Edges (Cases 5 & 6)[5,6]			Nails Spaced 6 in. Max at Supported Edges[5]	
				6	4	2-1/2[7]	Case 1 (No Unblocked Edges or Continuous Joints Parallel to Load)	All Other Configurations (Cases 2, 3 4, 5 & 6)
				Nail Spacing (in.) at Other Panel Edges (Cases 1, 2, 3 & 4)[5]				
				6	6	4		
Structural I	6d[8]	5/16	3	210	280	420	185	140
	8d	3/8	3	300	400	600	265	200
	10d	15/32	3	360	480	720	320	240
Sheathing and Single Floor	6d[8]	5/16	3	190	250	380	170	125
		3/8	3	210	280	420	185	140
	8d	3/8	3	270	360	540	240	180
		7/16	3	285	380	570	255	190
		15/32	3	300	400	600	265	200
	10d	15/32	3	325	430	650	290	215
		19/32	3	360	480	720	320	240

For **SI**: 1 inch = 25.4 mm; 1 plf = 14.59 N/m.

[1]For wind load applications, the values in the table above shall be permitted to be multiplied by 1.4.
[2]For shear loads of normal or permanent load duration as defined in the NDS, the values in the table above shall be multiplied by 0.63 or 0.56, respectively.
[3]The tabulated allowable shear capacities are for I-joist series with flanges having a specific gravity (G) of 0.50 or higher (see Figure 1). For G < 0.50 the allowable shear capacities shall be reduced by multiplying the allowable shear capacities by the Specific Gravity Adjustment Factor = [1-(0.5-G)]. The Specific Gravity Adjustment Factor shall not be greater than 1.
[4]Minimum flange widths of P3 JOIST I-joist framing members are 2-1/2 inches (3 inches nominal).
[5]Space nails maximum 12 inches o.c. along intermediate framing members (6 inches o.c. when supports are spaced 48 inches o.c. or greater). Fasteners shall be located 3/8 inch minimum from panel edges.
[6]When nail spacing is 4 inches on center at diaphragm boundaries, adjacent nails within a row must be offset (staggered) 1/2 inch.
[7]When nail spacing is 2-½ inches on center at adjoining panel edges, adjacent nails within a row must be offset (staggered) 1/2 inch.
[8]8d common nails minimum are recommended for roof panel attachments.
[9]See Table 4.2A of SDPWS for diaphragm configurations and minimum fastener penetration.

DIVISION: 06 00 00—WOOD, PLASTICS AND COMPOSITES
Section: 06 17 33—Wood I-joists

REPORT HOLDER:

EACOM TIMBER CORPORATION

ADDITIONAL LISTEES:

BLUELINX CORPORATION

EVALUATION SUBJECT:

P3 JOIST PJI-40, PJI-60, PJI-65, PJI-80 AND PJI-90 I-JOISTS

1.0 REPORT PURPOSE AND SCOPE

Purpose:

The purpose of this evaluation report supplement is to indicate that P3 JOIST I-joists, described in ICC-ES evaluation report ESR-1262, have also been evaluated for compliance with the codes noted below.

Applicable code editions:

- 2023 *Florida Building Code—Building*
- 2023 *Florida Building Code—Residential*

2.0 CONCLUSIONS

The P3 JOIST I-joists described in Sections 2.0 through 7.0 of the evaluation report ESR-1262, comply with the *Florida Building Code—Building* and the *Florida Building Code—Residential*. The design requirements must be determined in accordance with the *Florida Building Code—Building* or the *Florida Building Code—Residential*, as applicable. The installation requirements noted in the evaluation report ESR-1262 for the 2021 and *International Building Code®* (IBC) meet the requirements of the *Florida Building Code—Building* or the *Florida Building Code—Residential*, as applicable.

Use of the P3 JOIST I-joists for compliance with the High-Velocity Hurricane Zone provisions of the *Florida Building Code—Building* and the *Florida Building Code—Residential* has not been evaluated and is outside the scope of this evaluation report.

For products falling under Florida Rule 61G20-3, verification that the report holder's quality assurance program is audited by a quality assurance entity approved by the Florida Building Commission for the type of inspections being conducted is the responsibility of an approved validation entity (or the code official, when the report holder does not possess an approval by the Commission).

This supplement expires concurrently with the evaluation report, reissued January 2024.